Please add the following new claims:

-- Claim 32. A transgenic non-human animal, comprising a recombinant DNA molecule according to claim 26.

Claim 33. The transgenic non-human animal of claim 32, wherein said Jak kinase is murine Jak3.

Claim 34. The transgenic animal of claim 32, wherein said animal is a mouse.

Sub B1

Claim 35. An isolated DNA molecule comprising a DNA sequence encoding Jak3 kinase or a Jak3 kinase peptide, wherein said peptide has Jak kinase activity and undergoes tyrosine phosphorylation by at least one cytokine.

Claim 36. The isolated DNA molecule of claims 27 wherein said molecule encodes a polypeptide having at least one conservative amino acid substitution.

Claim 37. The isolated DNA molecule of claim 36, wherein said molecule encoded by said DNA has only one amino acid substitution.

Sub B2

Claim 38. The isolated DNA molecule of claim 35 comprising a DNA sequence encoding a polypeptide selected from the group consisting of amino acids 15-1500, 15-1009, 15-1006, 30-600 and 90-1500 of Figure 6.

Claim 39. The isolated DNA molecule of claim 35 wherein said molecule encodes a polypeptide corresponding to at least a 15 to 400 amino acid fragment of the amino acid sequence shown on Figure 6 (SEQ ID NO:16.), said polypeptide having Jak kinase activity and a tyrosine that is phosphorylated following IL-2 or IL-4 stimulation.

Claim 40. The isolated DNA molecule of claim 35, wherein said molecule encodes a polypeptide that is at least 80-99% homologous to an amino acid sequence encoded by said DNA sequence.

Claim 41. The isolated DNA molecule of claim 35 wherein said molecule encodes a polypeptide corresponding to at least a 5 to 335 amino acid fragment of the amino acid sequence shown on Figure 6, said polypeptide having Jak kinase activity and a tyrosine that is phosphorylated following IL-2 or IL-4 stimulation.

Sub B2

Claim 42. An isolated DNA molecule, wherein said DNA molecule hybridizes to a DNA sequence encoding amino acid SEQ ID NO: 16, wherein said hybridization is done at 65° C in 750 mM NaCl and a final washing is done at 65° C in 15 mM NaCl, wherein said isolated DNA sequence encodes a polypeptide having Jak kinase activity and a tyrosine that is phosphorylated following IL-2 or IL-4 stimulation.

Sub B3 C5

Claim 43. An isolated DNA molecule comprising a DNA sequence encoding a Jak kinase peptide, said peptide having cytokine receptor binding activity.

Claim 44. The transgenic non-human animal of claim 32, wherein expression of the DNA encoding the amino acid sequence of SEQ ID NO:16 is modulated such that Jak3 kinase activity is inhibited or repressed

Sub B3

Claim 45. An expression vector, comprising the isolated DNA molecule of claim 35 wherein said vector expresses said Jak kinase in a host cell.

Claim 46. An isolated host cell comprising the expression vector of claim 45.

Sub B4

Claim 47. The isolated DNA molecule of claim 35, wherein said molecule encodes a Jak3 kinase polypeptide that is at least 80-99% homologous to the amino acid sequence of SEQ ID NO: 16, wherein the percent homology is determined by comparing sequence information using a GAP computer program having the default parameters of (1) a unary comparison matrix

(containing a value of 1 for identities and 0 for non-identities), (2) a penalty of 3.0 for each gap and an additional 0.10 penalty for each symbol in each gap, and (3) no penalty for end gaps.

Claim 48. The isolated DNA molecule of claim 43 , wherein said molecule encodes a Jak3 kinase polypeptide that is at least 80-99% homologous to the amino acid sequence of SEQ ID NO:16, wherein the percent homology is determined by comparing sequence information using a GAP computer program having the default parameters of (1) a unary comparison matrix (containing a value of 1 for identities and 0 for non-identities), (2) a penalty of 3.0 for each gap and an additional 0.10 penalty for each symbol in each gap, and (3) no penalty for end gaps.

Claim 50. The isolated DNA molecule of claim 35, wherein said molecule comprises at least 50 nucleotides encoding an amino acid sequence from the Jak3 kinase sequence of SEQ ID NO. 16.

Claim 51. The isolated DNA molecule of claim 50, wherein said molecule comprises at least 60 nucleotides encoding an amino acid sequence from the Jak3 kinase sequence of SEQ ID NO. 16.

Claim 52. An isolated DNA molecule wherein said molecule encodes a Jak3 kinase polypeptide that is at least 80-99% homologous to the amino acid sequence of SEQ ID NO:16, wherein the percent homology is determined by comparing sequence information using a GAP computer program having the default parameters of (1) a unary comparison matrix (containing a value of 1 for identities and 0 for non-identities), (2) a penalty of 3.0 for each gap and an additional 0.10 penalty for each symbol in each gap, and (3) no penalty for end gaps.--